Fig. 1a

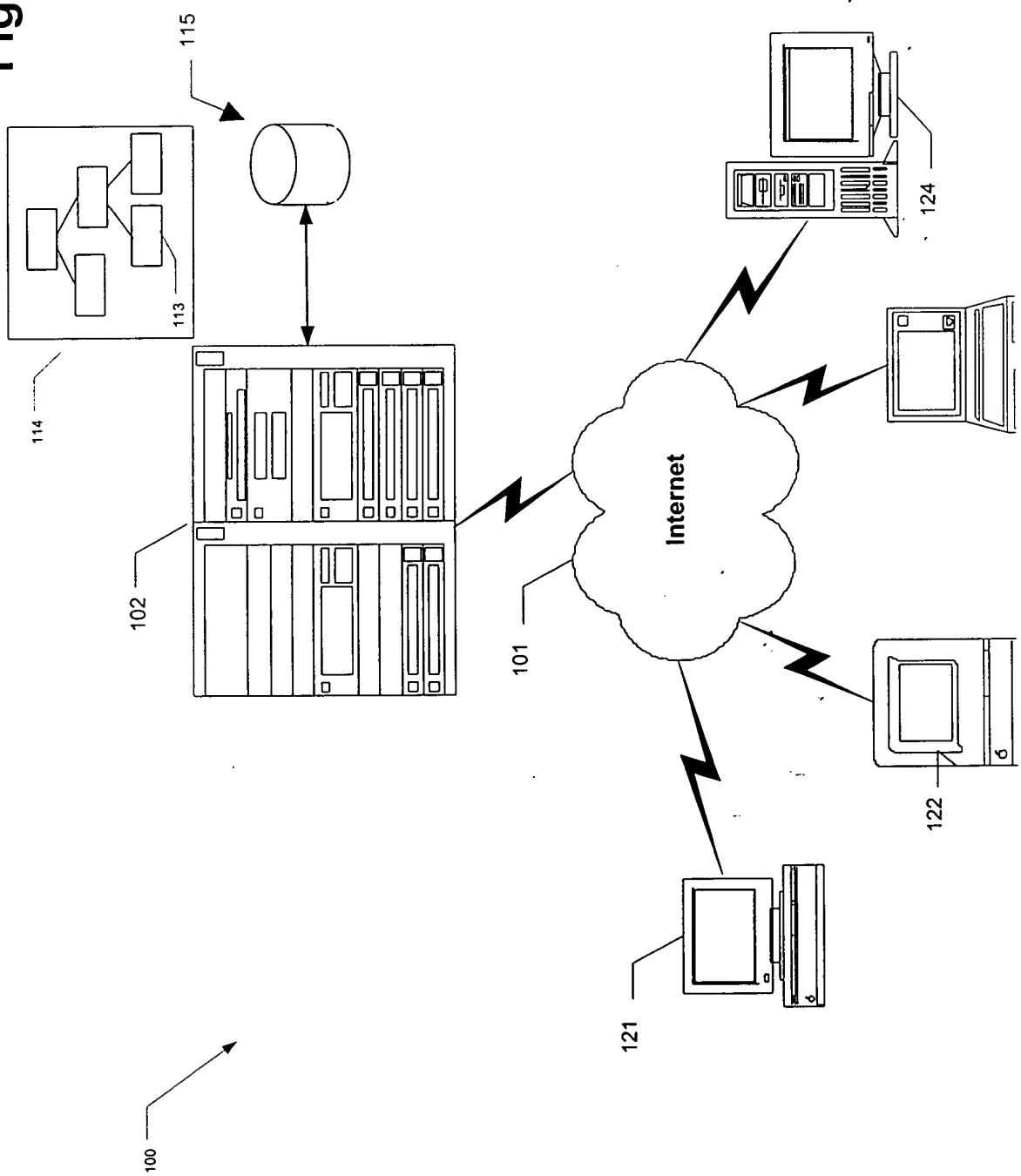
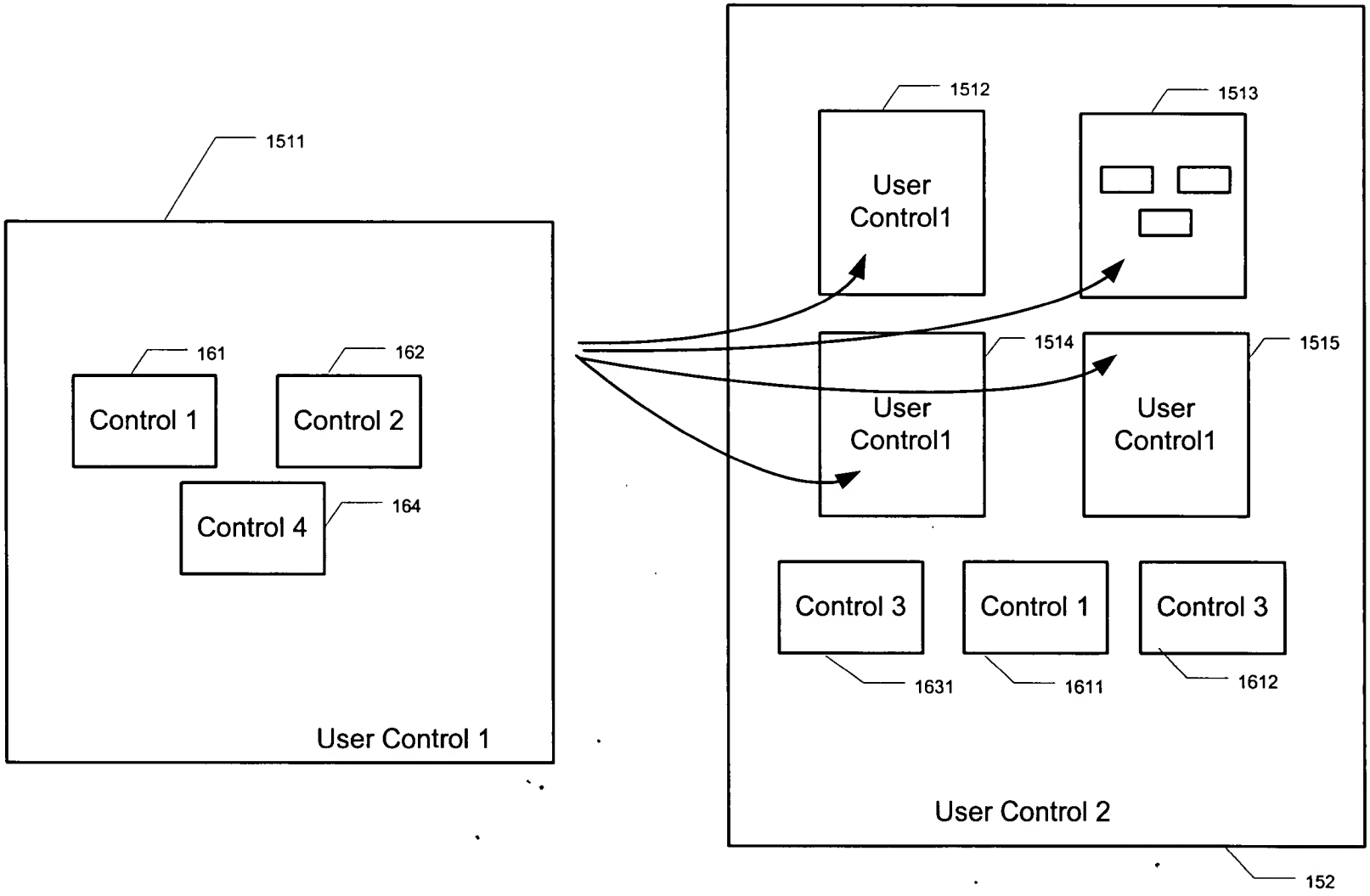


Fig. 1b

T001Z0 6Sn20660



Inventor: EBBO ET AL.
Docket No.: MS160315.1/40062.99US01
Title: USER CONTROL OBJECTS FOR PROVIDING SERVER-SIDE CODE GENERATION FROM A USER-DEFINED DYNAMIC WEB PAGE CONTENT FILE
Attorney Name: RICHARD J. GREGSON
Phone No.: 612.332.5300
Sheet 2 of 8

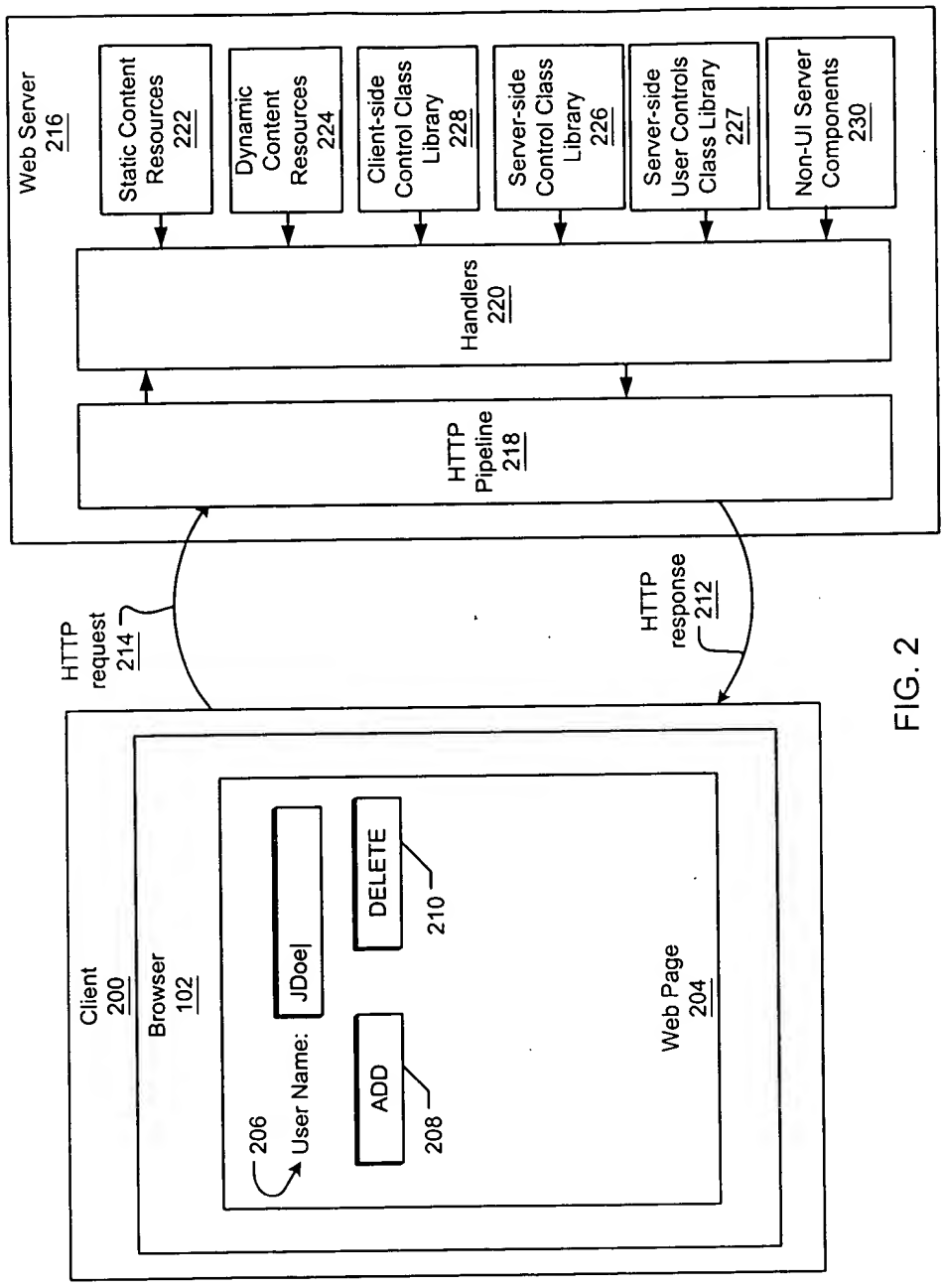

Web Server
216
Static Content Resources
222
Dynamic Content Resources
224
Client-side Control Class Library
228
Server-side Control Class Library
226
Server-side User Controls Class Library
227
Non-UI Server Components
230
Handlers
220
HTTP Pipeline
218
HTTP request
214
HTTP response
212
Client
200
Browser
102
Web Page
204
206
User Name:
JDoe
ADD
208
DELETE
210

FIG. 2

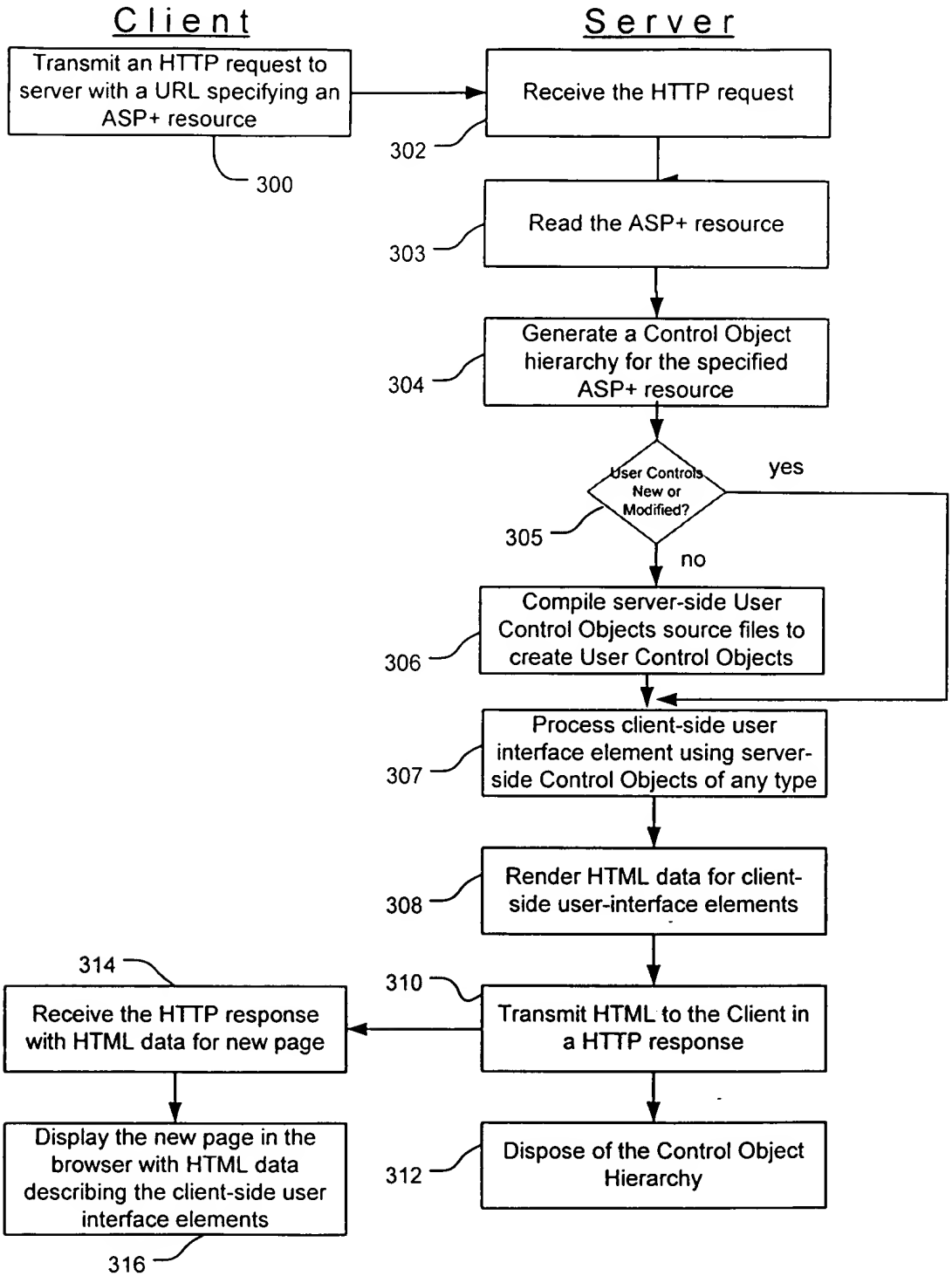

Client
Server
Transmit an HTTP request to server with a URL specifying an ASP+ resource
300
Receive the HTTP request
302
Read the ASP+ resource
303
Generate a Control Object hierarchy for the specified ASP+ resource
304
User Controls New or Modified?
305
yes
no
Compile server-side User Control Objects source files to create User Control Objects
306
Process client-side user interface element using server-side Control Objects of any type
307
Render HTML data for client-side user-interface elements
308
Transmit HTML to the Client in a HTTP response
310
Dispose of the Control Object Hierarchy
312
Receive the HTTP response with HTML data for new page
314
Display the new page in the browser with HTML data describing the client-side user interface elements
316

FIG. 3

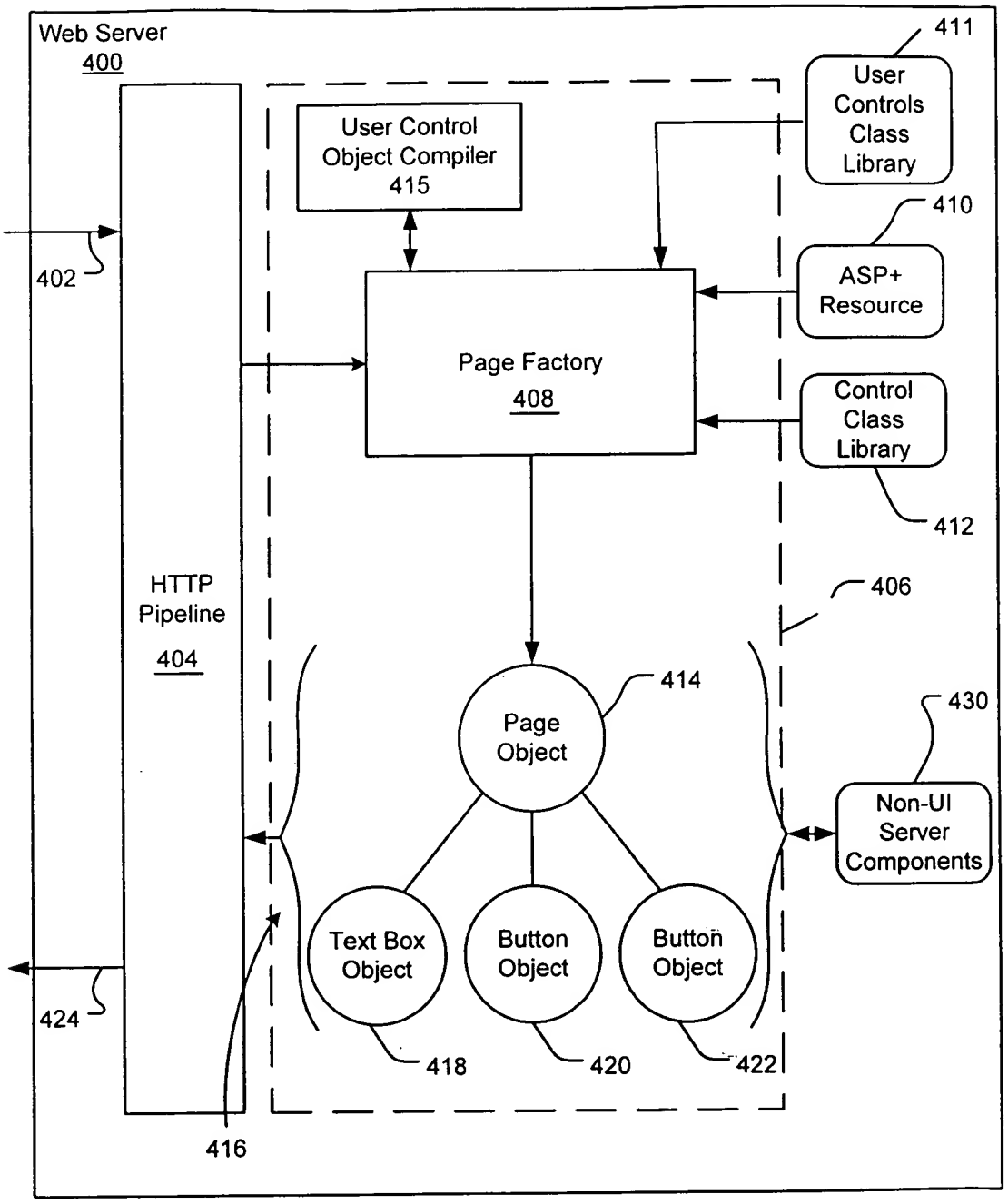

Web Server
400
411
User Controls Class Library
User Control Object Compiler 415
410
ASP+ Resource
402
Page Factory 408
Control Class Library
412
HTTP Pipeline 404
406
414
Page Object
430
Non-UI Server Components
Text Box Object
Button Object
Button Object
424
418
420
422
416

FIG. 4

TOOT20 69H20660

500

Testpage.aspx

```
1   <%@ Page Description="A Sample Page Consuming a User Control" %>
2   <%@ Register TagPrefix="merchant" TagName="datagrid" Src="MySimpleControl.aspc" %>
3   <html>
4       <script language="VB" runat=server>
5           sub Page_load(Sender as Object, E as EventArgs)
6               MySimpleControl.CustomerState = "CA"
7           End Sub
8       </script>

9       <body>
10          <h1> Merchant Page Title</h1>
11              <merchant:datagrid id="MySimpleControl" runat=server/>
12
13      </body>
14  </html>
```

510

MySimpleControl.aspc

```
1   <html>
2       <script language="VB" runat=server>
3           Public CustomerState = string
4           sub Page_Load(Sender as Object, E as EventArgs)
5               MyList.Data = SQL_Call("Select *  from Authors = " & CustomerState)
6           end Sub
7       </script>

8       <body>
9           <h1> Merchant Page Title</h1>
10          <asp:datagrid id="MyList" runat=server/>
11      </body>
12  </html>
```

FIG. 5

Inventor: EBBO ET AL.
Docket No.: MS160[redacted]40062.99US01
Title: USER CO[redacted]BJECTS FOR PROVIDING SERVER-SIDE CODE GENE[redacted]
FROM A USE[redacted]D DYNAMIC WEB PAGE CONTENT FILE
Attorney Name[redacted]ARD J. GREGSON
Phone No.: 612.332.5300
Sheet 6 of 8

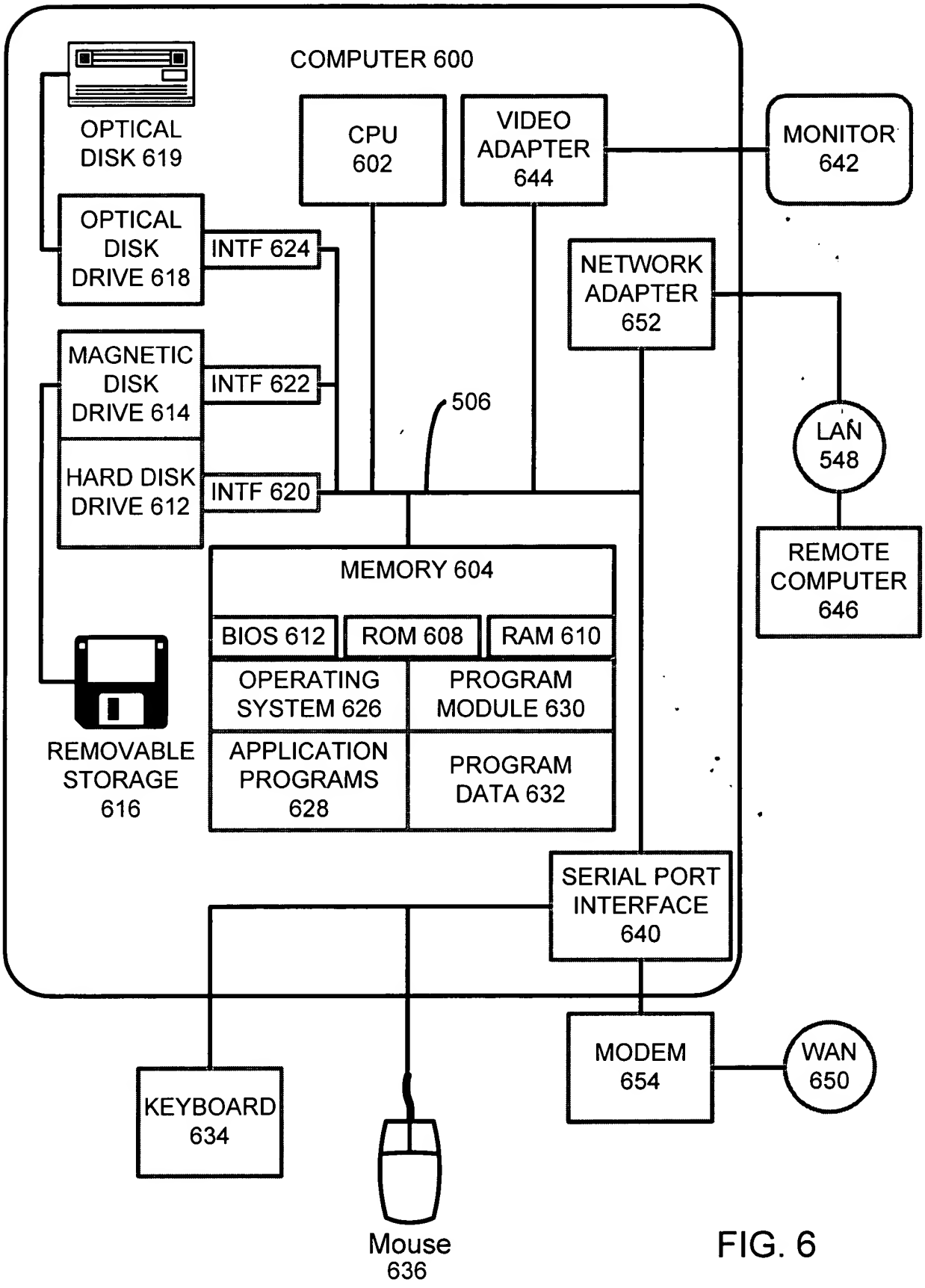

COMPUTER 600
OPTICAL DISK 619
CPU 602
VIDEO ADAPTER 644
MONITOR 642
OPTICAL DISK DRIVE 618
INTF 624
NETWORK ADAPTER 652
MAGNETIC DISK DRIVE 614
INTF 622
506
LAN 548
HARD DISK DRIVE 612
INTF 620
REMOTE COMPUTER 646
MEMORY 604
BIOS 612
ROM 608
RAM 610
OPERATING SYSTEM 626
PROGRAM MODULE 630
REMOVABLE STORAGE 616
APPLICATION PROGRAMS 628
PROGRAM DATA 632
SERIAL PORT INTERFACE 640
MODEM 654
WAN 650
KEYBOARD 634
Mouse 636

FIG. 6

Exhibit 2 to Deposition of

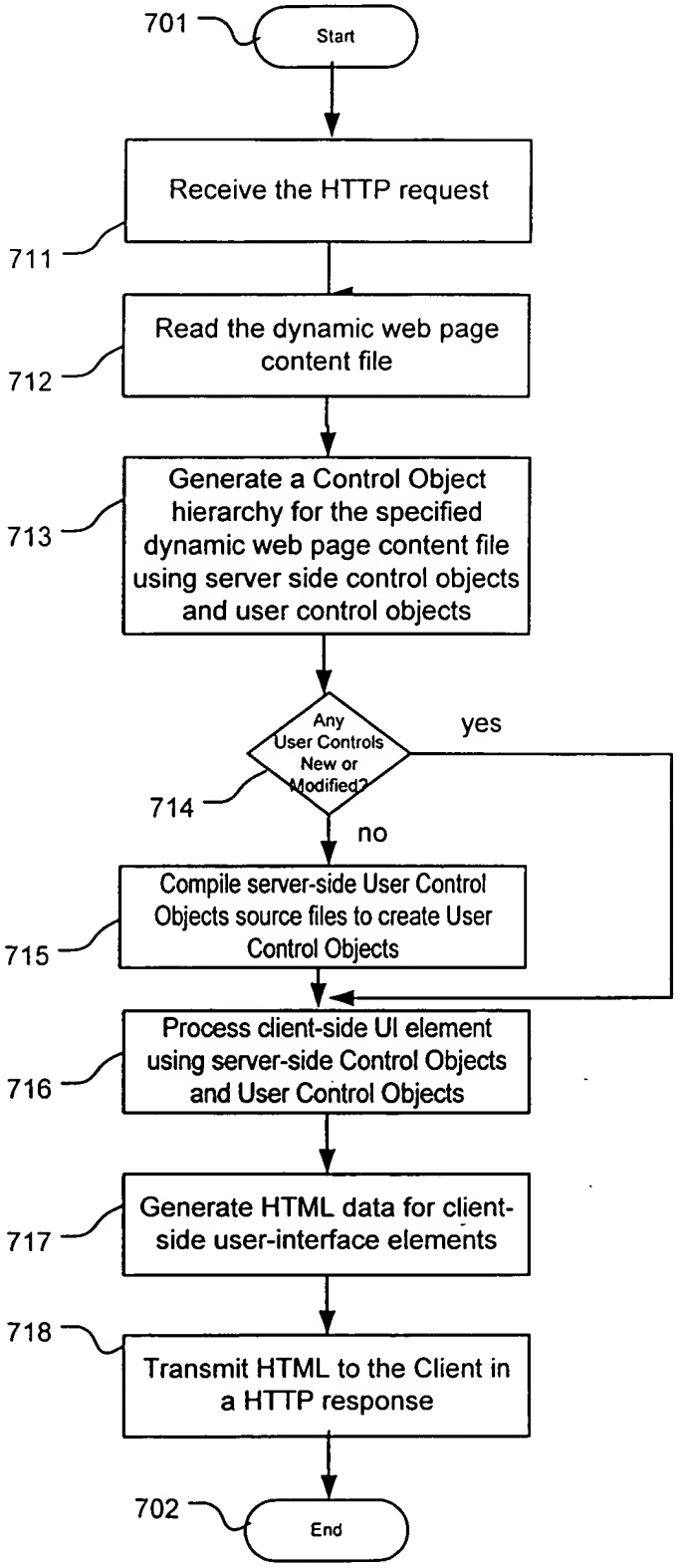


FIG. 7